

Thursday, February 11, 2016 2:46:03 PM

Page 1

Reference:

N900040100

Setup Start *NIS1*

Stop *NS2*

Cust Item ID:

Customer:

Date: FEB 11 2016

Tooling:

Date:

Run Start *NR1*

QC:

Date: _____ SPC (Y/N): _____

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation	Description
1	Start at the top left corner of the grid.
2	Move right until you reach the end of the row.
3	Move down one row.
4	Repeat steps 2 and 3 until you reach the bottom of the grid.
5	Stop at the bottom right corner of the grid.

Set Up/ Run Hours

[illegible]

Draw Nbr

Revision Nbr

D5034

A

100

0.00

100

HAND FINISHING THERMOFORMING

Thermoform

Memo

0.00

Thermoforming Machine

Set up Clamping Frame and Load Programas per Work Instruction WI 163

DAS
07
9-89

16/4/7

**DAS
07
9-89**

110

0.00

110

HAND FINISHING THERMOFORMING

Thermoform

Memo

0.00

Thermoforming Machine

Cut Blanks to 32" by 42-1/2"

16/4/4

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____

Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																	

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Work Order ID 141802

Thursday, February 11, 2016 2:46:03 PM

141802

Page 2

Item ID: D5034-2 Accept *N9000040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Bubble Window
 Start Date: 2/11/2016 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 2/18/2016 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							DAS 07 9-89

120

Thermoform

Thermoforming Machine

THERMOFORMING MACHINE

Memo

Thermoform as per Dwg. D5034 and WI 163

Dwg. Rev. A

WI Rev. B

1-Visually inspect part for proper formation and texture

2-Check depth of bubble

x2 x1
 PTC →

16/04/04

150

150

Thermoform

Thermoforming Machine

HAND FINISHING THERMOFORMING

Memo

1) Trim off excess flange material

2) Buff out any light scratches or blemishes

3) Etch part number and batch number

x2

16/04/05

DAS
07
9-89

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																	

Root Cause				FAULT CATEGORY																																																											
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Setup ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
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Work Order ID 141802

Thursday, February 11, 2016 2:46:03 PM

141802

Page 3

Item ID: D5034-2 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Bubble Window
 Start Date: 2/11/2016 Start Qty: 1.00 *1*
 Required Date: 2/18/2016 Req'd Qty: 1.00 *1*
 Reference: Cust Item ID:
 Customer:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
155 *155* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Dimensional Inspection Memo Fill out Inspection Sheet Rev A	0.00 0.00					x 7		DAS 07 9-89 14/04/05
160 *160* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo 1) Visually inspect for clarity, and proper formation.	0.00 0.00						① 16-04-05	DAS 9 9-89
170 *170* Packaging Packaging	Identify as per dwg & Stock Location: Packaging Memo	0.00 0.00						/	DAS 28 9-89 APR 05 2016

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
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Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 141802

Thursday, February 11, 2016 2:46:03 PM

141802

Page 4

Item ID: D5034-2

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Bubble Window

Start Date: 2/11/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 2/18/2016 Req'd Qty: 1.00 *1*

Customer:

Reference:

Run Start *NR1*

Approvals: Process Plan: Date:

Tooling: Date:

Stop *NR2*

QC: Date:

SPC (Y/N): Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.00

Quality Control

ML5 APR 05 2016

SA 20160405

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Picklist-Print

Thursday, February 11, 2016 2:46:09 PM

Page 1

Work Order ID: 141802

141802

Parent Item: D5034-2

D5034-2

Parent Item Name: Bubble Window

Start Date: 2/11/2016

Required Date: 2/18/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev. A New Issue 14/03/18 DL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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MACRLICS.236

Purchased

No

100

sf

138.5233

13.34

13.40704

**

DAS
07
9-89

MACRI ICS 236

Plexiglass G 0.236"

Location

Loc Qty

Loc Code

therm

138.5233333

M132743

106.523333

M134103

32

70.20
~~26.81~~ 8 ft.

16/07/05

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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DART AEROSPACE LTD		Work Order: 141802
Description: Bubble Window (BK117)		Part Number: D5034-2
Inspection Dwg: D5034	Rev: A	Page 1 of 1

INSPECTION SHEET
THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Bubble Depth within tolerance	✓			
Shape Definition	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by:	DAS 07 9-89	Date: 14/04/04
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TRIMMING SECTION

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
10.5	+/-0.5	11.0"	✓			
12.0	+/-0.5	11.5"	✓			
0.068	Min	0.073	✓			
0.044	Min	0.060"	✓			
0.030	Min	0.041"	✓			
1.25	0.100	1.25"	✓			
1.2	0.100	1.25"	✓			
11.0	0.100					
33.5	0.100	AS PER JLG.				
31.5	0.100	DI 10035.				
22.5	0.100					

Measured by:	DAS 07 9-89	Date: 16/04/05
Audited by:	DAS 9 9-89	Date: 16-04-05
Preliminary Approval:		Date:

Rev	Date	Change	Revised by	Approved
A	15.04.27	New Issue	KJ	

DQA: _____ Date: _____

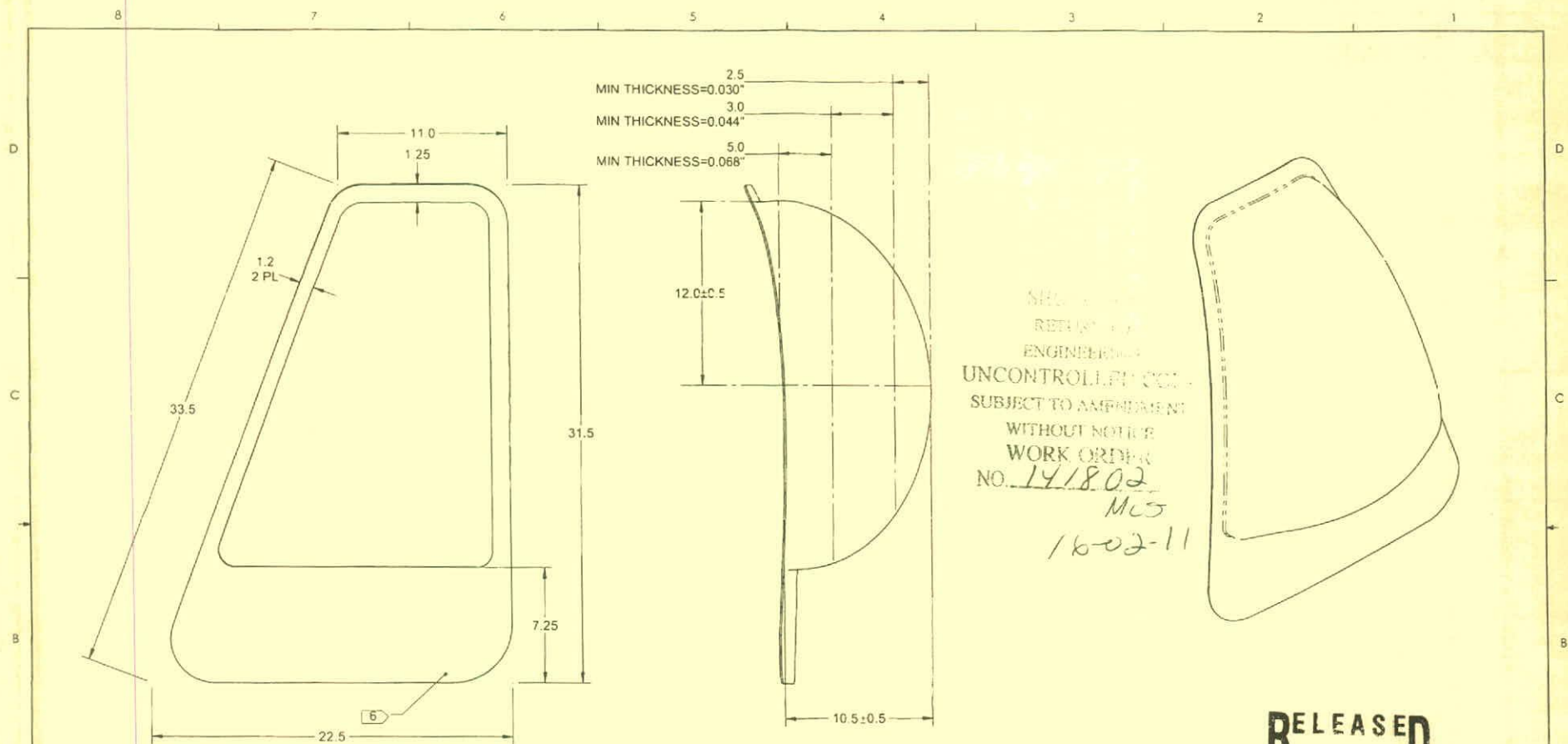


WORK ORDER NON-CONFORMANCE / UPDATE

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Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 141802
 MGS
 1602-11

D5034-2 BUBBLE WINDOW

RELEASED
 2014-06-20

NOTES:

- 1) MATERIAL: PLEXIGLASS "G" CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C OR POLYCAST II CLEAR ACRYLIC PER MIL-P-5425 0.236 THICK (REF DART SPEC M-ACRYLIC-S 236)
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.4 WITH VIBRATING STYLUS ENGRAVE DART P/N "D5034-2" & B/N "BXXXXX" ON THE INSIDE SURFACE WITHIN 0.50" OF BOTTOM EDGE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005"
- 7) WEIGHT: 5.2 lbs
- 8) THERMOFORM PART PER QSI 022 USING DT10033. TRIM PER JIG DT10035.

APPROVED	DESIGN	DB	DART AEROSPACE LTD	
	DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
	CHECKED	DC	DRAWING NO	REV. A
	MFG. APPR.	DL	D5034	SHEET 1 OF 1
	APPROVED	MP	TITLE	SCALE
	DE APPR.	DS	BK117 BUBBLE WINDOW	NTS
DATE		14.01.23	COPYRIGHT © 2014 BY DART AEROSPACE LTD	

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

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